



Energy Division

Crompton Instruments Tegra 710 and 810 Digital Metering System



Tegra 710 and 810 Digital Metering System

The Tegra 710 and 810 multi-function digital metering systems display and communicate major electrical parameters. To suit user requirements the range includes single-phase, three-phase three-wire and three-phase four-wire capabilities under low voltage with unbalanced loads.

Operation

The digital meters are available in 4 module DIN-rail or DIN 72 panel mounted enclosure and display up to 57 electrical parameters including the true rms values, selectable CT and VT ratios and monitor current, voltage, power factor, phase angle, active/reactive energy, and frequency values. The simple menu-driven interface offers three reading modes (phase parameters, system parameters and maximum parameter values).

Features

- LCD, backlight control
- Fully programmable VT and CT ratios
- Current demand per phase
- Resetable active energy meter
- Resetable reactive energy meter
- Programmable relay outputs
- Modbus RTU

Benefits

- Compact design
- True rms measurement
- Menu-driven interface
- Import, export monitoring

Measured Parameters

- System volts
- System current
- System active power
- System apparent power
- System reactive power
- Phase - neutral voltages (VL-N)
- Phase - phase voltages (VL-L)
- Phase - phase current
- Frequency (of voltage V1)
- Active power per phase
- Apparent power per phase
- Reactive power per phase
- Power factor (PF)
- Total active energy Wh
- Total reactive energy VArh
- Phase angle
- Mean and peak values
- Time and date
- Hours run

Programmable Display

The interface programme buttons enable simple programming of CT and VT ratios settings, configuration of selected communication options and adjustment of operating parameters.

System Input

Designed for all low and medium voltage switchgear and distribution systems, the Tegra 710 and 810 DMS offer programmable VT and CT ratio capability and direct connection up to 500V ac with 5A CT inputs.

System Output

The standard version of Tegra 710 and Tegra 810 offers two independently programmable relay outputs (2A, 250V) that can be configured to produce either a pulsed output or can be individually programmed to be associated to the measured parameters. (Operating value, latching, alarm mode, relay operating mode, set-point value, differential value, relay activation delay).

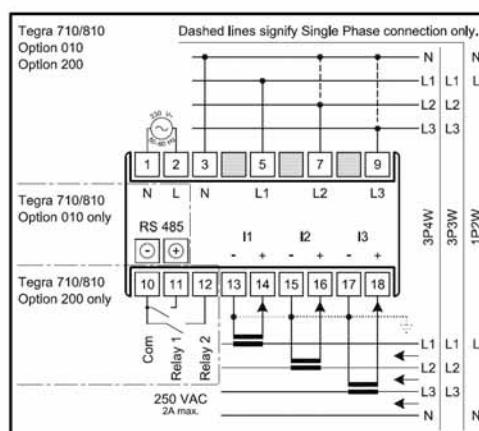
Digital Communications

Tegra 710 and Tegra 810 DMS offer optional RS485 communication port for direct connection to SCADA systems using the Modbus RTU protocol. Remote monitoring enables user to record system parameters in real time, using high resolution numbers.

Product Codes

Description	Cat. no.
DIN-rail, 4-module LCD display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, 2 relay O/P	TEGRA-710-200
DIN-rail 4-module LCD Display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, RS-485 Modbus O/P	TEGRA-710-010
72mm Panel Mounted LCD Display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, 2 Relay O/P	TEGRA-810-200
72mm Panel Mounted LCD Display 50-500V L-L, 0.25-6A ac, Aux. 230V ac, RS-485 Modbus O/P	TEGRA-810-010

Connections



Technical Specification

Inputs

Nominal rated input voltage
Nominal input voltage burden
Nominal rated input current
Nominal input current burden
System CT primary values
System VT primary values

Auxiliary

Standard supply voltage
Supply burden
<4 VA

Measuring ranges

Values of measured quantities for which accuracy is defined.

Voltage
Current
Frequency
Power factor
Power
Energy

30 - 550V (minimum voltage 10V)
0.25 - 6A (minimum current 20 mA)
47 - 63Hz
0.2 IND - 0.2 CAP
100 MW per phase
100 MWh

Accuracy

Voltage
Current
Frequency
Power factor
Active power (W)
Reactive power (var)
Apparent power (VA)
Active energy (Wh)
Reactive energy (varh)
Ambient temperature
Input frequency
Input waveform
Auxiliary supply voltage
Auxiliary supply frequency
Magnetic field of external origin

0.5 % \pm 1 digit
0.5 % \pm 1 digit
 \pm 0.1Hz
 \pm 3 digit
1% \pm 1 digit
1% \pm 1 digit
1% \pm 1 digit
Class 2
Class 3
20°C
50/60Hz
Sinusoidal
230V
50/60Hz
Terrestrial flux.

Standards

EMC Emissions
EMC Immunity
Safety

EN 61000-6-3
EN 61000-6-2
EN 61010-1

Insulation

CT primary to voltage circuits
Relay "contact" to voltage circuits
RS485 to voltage circuits
Analogue to voltage circuits
Auxiliary supply to voltage circuits

Principal (EN61010-1)
Reinforced (EN 61010-1)
Reinforced (EN 61010-1)
N/A
Principal (EN 61010-1)

Environmental

Operating temperature
Storage temperature
Relative humidity
Warm up time
Shock

0 to +50°C *
-20 to +60°C *
10 - 90 % non condensing
1 minute
0.5 J

* Maximum operating and storage temperatures are in the context of typical daily and seasonal variation. This product is not designed for permanent operation or long term storage at maximum specified temperatures.

Enclosure

Sealing
Mounting

IP 40 (54 front side installed)
DIN-rail 4 modules, panel mounting version 72mm
DIN-rail mounting, plastic moulded case. ABS + polycarbonate alloy UL94-VO

0.25 kg DIN-rail and panel mounting (Overall)

Serial Communications Option

Baud rate
Parity
Protocol

Max 9600 bps (programmable)
None, Odd or Even
Modbus RTU (RS485)

Active Energy or Reactive Energy Pulsed Output Option

Default pulse rate

Pulsed Output
Pulsed Duration
Pulsed Rating

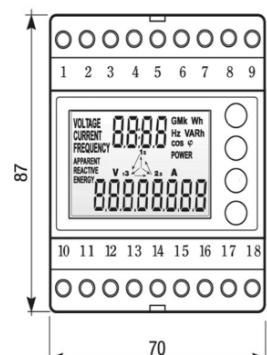
1 pulse each "20 x primary CT" Wh or varh for VT primary till 230 V
1 pulse each "40 x primary CT" Wh or varh for VT primary from 230 V to 580 V
Relay (Free contact)
100 ms

Reference conditions of influence quantities

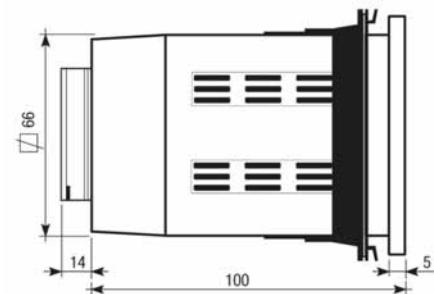
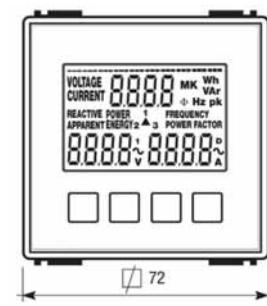
Influence quantities are variables which affect measurement errors to a minor degree.
Accuracy is verified under nominal value (within specified tolerance) of these conditions.

Dimensions

Tegra 710



Tegra 810



Energy Division

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